

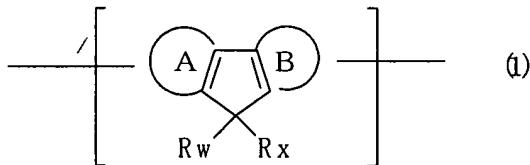
Jun OGUMA et al.
Atty. Dkt.: Q95134
Preliminary Amendment

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

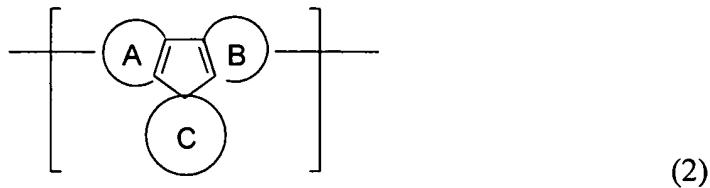
LISTING OF CLAIMS:

1. (currently amended): A polymer compound comprising a repeating unit of the following formula (1):



{wherein, ring A and ring B represent each independently an aromatic hydrocarbon ring optionally having a substituent, at least one of ring A and ring B is an aromatic hydrocarbon ring composed of a plurality of condensed benzene rings, two connecting bonds are present on ring A and/or ring B, R_w and R_x represent each independently a hydrogen atom, alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group, and R_w and R_x may mutually bond to form a ring}.

2. (currently amended): The polymer compound according to Claim 1, wherein the repeating unit of the formula (1) is a repeating unit of the following formula (2):



(wherein, ring A and ring B represent each independently an aromatic hydrocarbon ring optionally having a substituent, at least one of ring A and ring B is an aromatic hydrocarbon ring composed of a plurality of condensed benzene rings, two connecting bonds are present on ring A and/or ring B, and ring C represent a hydrocarbon ring or heterocyclic ring).

3. (currently amended): The polymer compound according to Claim 1-~~or 2~~, wherein the aromatic hydrocarbon ring in ring A and the aromatic hydrocarbon ring in ring B have mutually different ring structures.

4. (currently amended): The polymer compound according to ~~any one of Claims 1 to 3~~Claim 1, wherein the number-average molecular weight in terms of polystyrene is 10^3 to 10^8 .

5. (currently amended): The polymer compound according to ~~any one of Claims 1 to 4~~Claim 1, wherein the weight-average molecular weight in terms of polystyrene is 5×10^4 or more.

6. (original): The polymer compound according to Claim 5, wherein the weight-average molecular weight in terms of polystyrene is 10^5 or more.

7. (currently amended): The polymer compound according to ~~any one of Claims 1 to 6~~Claim 1, wherein when the aromatic hydrocarbon ring has a substituent, the substituent is selected from the group consisting of an alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group,

Jun OGUMA et al.
Atty. Dkt.: Q95134
Preliminary Amendment

arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group.

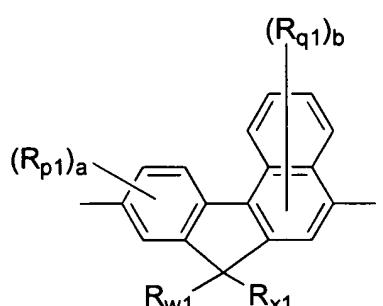
8. (currently amended): The polymer compound according to ~~any one of Claims 1 to 7~~Claim 1, wherein the combination of ring A and ring B is a combination selected from a benzene ring, naphthalene ring, anthracene ring, tetracene ring, pentacene ring, pyrene ring, and phenanthrene ring.

9. (original): The polymer compound according to Claim 8, wherein the combination of ring A and ring B is a combination selected from any combinations of benzene ring and naphthalene ring, benzene ring and anthracene ring, benzene ring and phenanthrene ring, naphthalene ring and anthracene ring, naphthalene ring and phenanthrene ring, anthracene ring and phenanthrene ring.

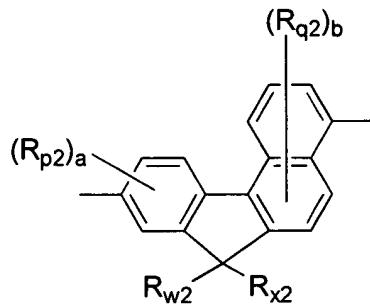
10. (original): The polymer compound according to Claim 9, wherein the ring A is a benzene ring and the ring B is a naphthalene ring.

11. (currently amended): The polymer compound according to Claim 10, wherein the repeating unit of said formula (1) is a structure of the following formula (1-1), (1-2), (1-3) or (1-4):

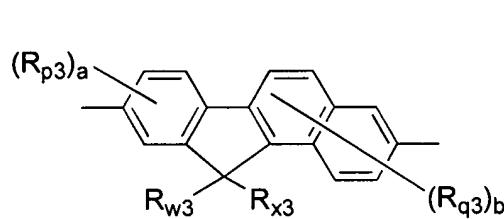
Jun OGUMA et al.
Atty. Dkt.: Q95134
Preliminary Amendment



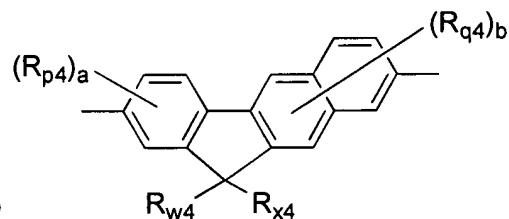
(1-1)



(1-2)



(1-3)



(1-4)

(wherein, R_{p1}, R_{q1}, R_{p2}, R_{q2}, R_{p3}, R_{q3}, R_{p4} and R_{q4} represent each independently an alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group.—a represents an integer of 0 to 3, and b represents an integer of 0 to 5. When 5, when a plurality of R_{p1}s, R_{q1}s, R_{p2}s, R_{q2}s, R_{p3}s, R_{q3}s, R_{p4}s and R_{q4}s are present, these may be the same or different.—R_{w1}, R_{x1}, R_{w2}, R_{x2}, R_{w3}, R_{x3}, R_{w4} and R_{x4} represent each independently a hydrogen atom, alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group,

Jun OGUMA et al.
Atty. Dkt.: Q95134
Preliminary Amendment

arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group, and R_{w1} and R_{x1}, R_{w2} and R_{x2}, R_{w3} and R_{x3}, R_{w4} and R_{x4} may mutually bond to form a ring).

12. (original): The polymer compound according to Claim 11, wherein the repeating unit of said formula (1) is a structure of said formula (1-1), and a=b=0.

13. (currently amended): The polymer compound according to Claim 11 or 12, composed only of any one of the repeating units of said formulae (1-1), (1-2), (1-3) and (1-4).

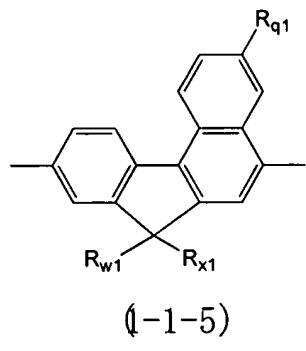
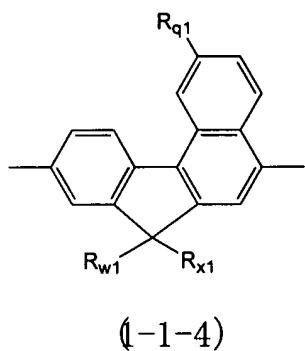
14. (original): The polymer compound according to Claim 11, comprising two or more of the repeating units of said formulae (1-1), (1-2), (1-3) and (1-4).

15. (currently amended): The polymer compound according to ~~any one of Claims 11 to 14~~ Claim 11, wherein in the repeating units of said formulae (1-1), (1-2), (1-3) and (1-4), R_{w1} and R_{x1}, R_{w2} and R_{x2}, R_{w3} and R_{x3}, R_{w4} and R_{x4} are respectively the same.

16. (currently amended): The polymer compound according to ~~any one of Claims 11 to 15~~ Claim 11, wherein R_{w1}, R_{x1}, R_{w2}, R_{x2}, R_{w3}, R_{x3}, R_{w4} and R_{x4} represent each independently an aryl group or arylalkyl group.

17. (original): The polymer compound according to Claim 11, wherein in said formulae (1-1), (1-2), (1-3) and (1-4), a=0 and b=1.

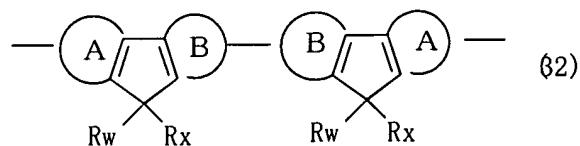
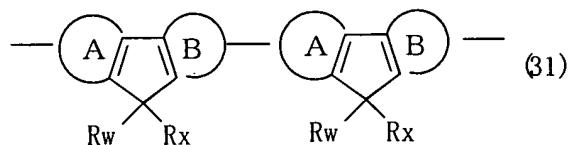
18. (currently amended): The polymer compound according to Claim 17, wherein said formulae (1-1) is the following formula (1-1-4) or (1-1-5):

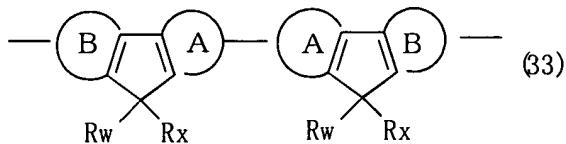


{wherein, R_{w1}, R_{x1} and R_{q1} have the same meanings as described above}.

19. (original): The polymer compound according to Claim 18, wherein in said formulae (1-1-4) and (1-1-5), R_{q1} represents an alkyl group having a branched structure or cyclic structure.

20. (currently amended): The polymer compound according to ~~any one of Claims 1 to 19~~Claim 1, comprising one or more of structures of the following formulae (31), (32) and (33):





(wherein, ring A and ring B represent each independently an aromatic hydrocarbon ring optionally having a substituent, the aromatic hydrocarbon ring in ring A and the aromatic hydrocarbon ring in ring B have mutually different ring structures, a connecting bond is present on both ring A and ring B, R_w and R_x represent each independently a hydrogen atom, alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group, and R_w and R_x may mutually bond to form a ring).

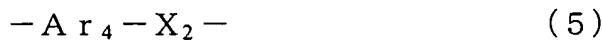
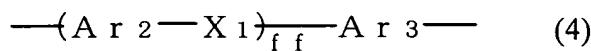
21. (original): The polymer compound according to Claim 20, wherein ring B represents an aromatic hydrocarbon ring composed of a plurality of condensed benzene rings, the aromatic hydrocarbon ring in ring A and the aromatic hydrocarbon ring composed of a plurality of condensed benzene rings in ring B have mutually different ring structures, a structure of said formula (31) is contained, and the proportion of a B ring-B ring chain shown in said formula (32) is 0.4 or less based on all chains containing ring B in the polymer compound.

22. (currently amended): The polymer compound according to Claim 20-~~or 21~~, wherein it is a copolymer containing the repeating unit of said formula (1) in a ratio of 50 mol% or more based on all repeating units, and when the proportion that the repeating unit of the

Jun OGUMA et al.
Atty. Dkt.: Q95134
Preliminary Amendment

formula (1) is adjacent to the repeating unit of the formula (1) is represented by Q₁₁, Q₁₁ is 25% or more.

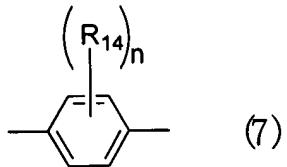
23. (currently amended): The polymer compound according to ~~any one of Claims 1 to 22~~Claim 1, further comprising a repeating unit of the following formula (3), (4), (5) or (6):



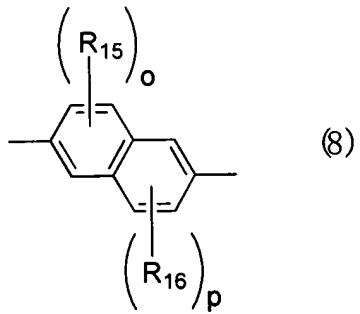
(wherein, Ar₁, Ar₂, Ar₃ and Ar₄ represent each independently an arylene group, divalent heterocyclic group or divalent group having a metal complex structure.—X₁, X₂ and X₃ represent each independently -CR₉=CR₁₀-, -C≡C-, -N(R₁₁)- or -(SiR₁₂R₁₃)_m—, R₉ and R₁₀ represent each independently a hydrogen atom, alkyl group, aryl group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group.—R₁₁, R₁₂ and R₁₃ represent each independently a hydrogen atom, alkyl group, aryl group, mono-valent heterocyclic group, arylalkyl group or substituted amino group.—ff represents 1 or 2.—m represents an integer of 1 to 12. ~~When 12, when~~ a plurality of R₉s, R₁₀s, R₁₁s, R₁₂s and R₁₃s are present, these may be the same or different).

24. (currently amended): The polymer compound according to Claim 23, wherein the repeating unit of said formula (3) is a repeating unit of the following formula (7), (8), (9), (10), (11) or (12):

Jun OGUMA et al.
Atty. Dkt.: Q95134
Preliminary Amendment



(wherein, R_{14} represents an alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group.— n represents an integer of 0 to 4. When 4, when a plurality of R_{14} s are present, these may be the same or different.):



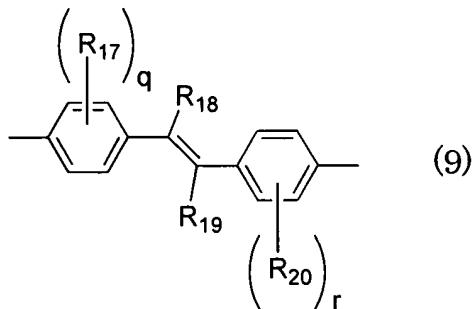
(wherein, R_{15} and R_{16} represent each independently an alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or

Jun OGUMA et al.

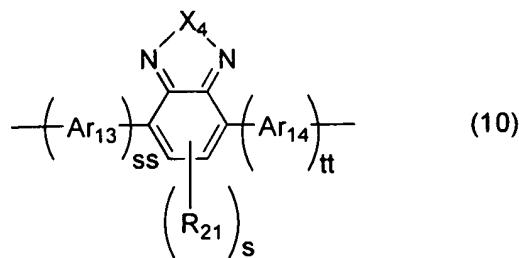
Atty. Dkt.: Q95134

Preliminary Amendment

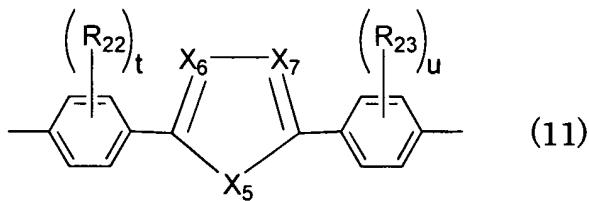
cyano group.—o and p represent each independently an integer of 0 to 3.—When 3, when a plurality of R₁₅s and R₁₆s are present, these may be the same or different.—:



{wherein, R₁₇ and R₂₀ represent each independently an alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group.—q and r represent each independently an integer of 0 to 4.—R₁₈ and R₁₉ represent each independently a hydrogen atom, alkyl group, aryl group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group.—When group, when a plurality of R₁₇s and R₂₀s are present, these may be the same or different.—:



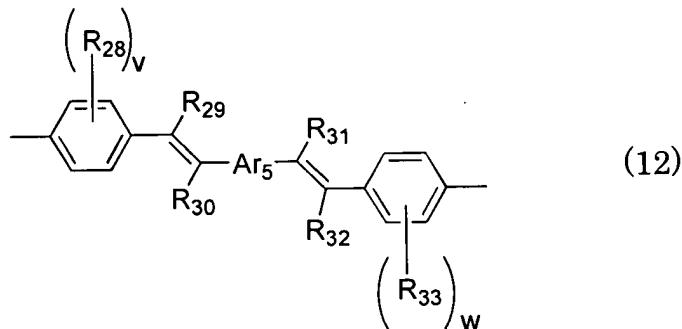
{wherein, R₂₁ represents an alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group.—s represents an integer of 0 to 2.—Ar₁₃ and Ar₁₄ represent each independently an arylene group, divalent heterocyclic group or divalent group having a metal complex structure.—ss and tt represent each independently 0 or 1.—X₄ represents O, S, SO, SO₂, Se or Te. When Te, when a plurality of R₂₁s are present, these may be the same or different.}):



{wherein, R₂₂ and R₂₃ represent each independently an alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group.—t and u represent each independently an integer of 0 to 4.—X₅ represents O, S, SO₂, Se, Te, N-R₂₄ or SiR₂₅R₂₆.—X₆ and X₇ represent each independently N or C-R₂₇.—R₂₄, R₂₅, R₂₆ and R₂₇ represent each independently a hydrogen atom, alkyl group, aryl group, arylalkyl

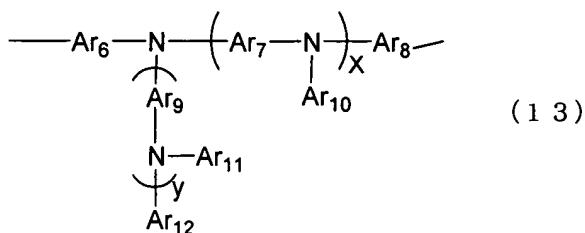
Jun OGUMA et al.
Atty. Dkt.: Q95134
Preliminary Amendment

group or mono-valent heterocyclic group. ~~When group, when~~ a plurality of R₂₂s, R₂₃s and R₂₇s are present, these may be the same or different.):



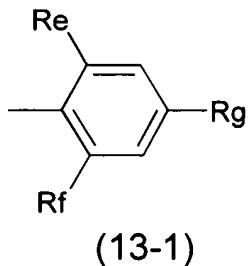
(wherein, R₂₈ and R₃₃ represent each independently an alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group.—v and w represent each independently an integer of 0 to 4.—R₂₉, R₃₀, R₃₁ and R₃₂ represent each independently a hydrogen atom, alkyl group, aryl group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group.—Ar₅ represents an arylene group, divalent heterocyclic group or divalent group having a metal complex structure. ~~When structure, when~~ a plurality of R₂₈s and R₃₃s are present, these may be the same or different).

25. (currently amended): The polymer compound according to Claim 23, wherein the repeating unit of said formula (4) is a repeating unit of the following formula (13):



{wherein, Ar₆, Ar₇, Ar₈ and Ar₉ represent each independently an arylene group or divalent heterocyclic group.—Ar₁₀, Ar₁₁ and Ar₁₂ represent each independently an aryl group or monovalent heterocyclic group.—, Ar₆, Ar₇, Ar₈, Ar₉ and Ar₁₀ may have a substituent.—x and y represent each independently 0 or a positive integer}.

26. (currently amended): The polymer compound according to Claim 25, wherein in the repeating unit of said formula (13), Ar₁₀, Ar₁₁ and Ar₁₂ are each independently selected from groups of the following formula (13-1):



{wherein, Re, Rf and Rg represent each independently an alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, silyloxy group, substituted silyloxy group, mono-valent heterocyclic group or halogen atom}.

Jun OGUMA et al.
Atty. Dkt.: Q95134
Preliminary Amendment

27. (currently amended): The polymer compound according to Claim 25-~~or 26~~, wherein in the repeating unit of said formula (13), $x+y=1$.

28. (currently amended): The polymer compound according to ~~any one of Claims 25 to 27~~Claim 25, wherein the compound comprises each one or more of repeating units of said formula (1) and repeating units of said formula (13), the sum of these repeating units is 50 mol% or more based on all repeating units, and the molar ratio of the sum of repeating units of the formula (1) to the sum of repeating units of the formula (13) is 98:2 to 60:40.

29. (original): The polymer compound according to Claim 28, wherein the compound comprises 1 to 3 repeating units of said formula (13).

30. (original): The polymer compound according to Claim 29, wherein the compound comprises one repeating unit of said formula (1) and 1 or 2 repeating units of said formula (13).

31. (currently amended): The polymer compound according to ~~any one of Claims 28 to 30~~Claim 28, wherein the sum of repeating units of said formula (1) and repeating units of said formula (13) is 90 mol% or more based on all repeating units.

32. (currently amended): The polymer compound according to ~~any one of Claims 28 to 34~~Claim 28, wherein the repeating unit of said formula (1) is a repeating unit of said formula (1-1), (1-2), (1-3) or (1-4).

33. (original): The polymer compound according to Claim 32, wherein the repeating unit of said formula (1) is a repeating unit of said formula (1-1) or (1-2).

34. (original): The polymer compound according to Claim 32, wherein the repeating unit of said formula (1) is a repeating unit of said formula (1-1) and $a=b=0$.

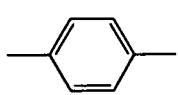
Jun OGUMA et al.
Atty. Dkt.: Q95134
Preliminary Amendment

35. (currently amended): The polymer compound according to ~~any one of Claims 25 to 34~~Claim 25, wherein in the repeating unit of said formula (13), $y=0$ and $x=1$.

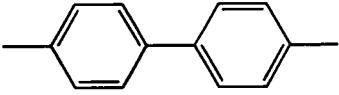
36. (currently amended): The polymer compound according to ~~any one of Claims 25 to 34~~Claim 25, wherein in the repeating unit of said formula (13), $y=1$ and $x=0$.

37. (currently amended): The polymer compound according to ~~any one of Claims 25, 26 and 28 to 34~~Claim 25, wherein in the repeating unit of said formula (13), $y=0$ and $x=0$.

38. (currently amended): The polymer compound according to ~~any one of Claims 25 to 35~~Claim 25, wherein in the repeating unit of said formula (13), Ar_7 is represented by the following formula (19-1) or (19-2):



(19-1)



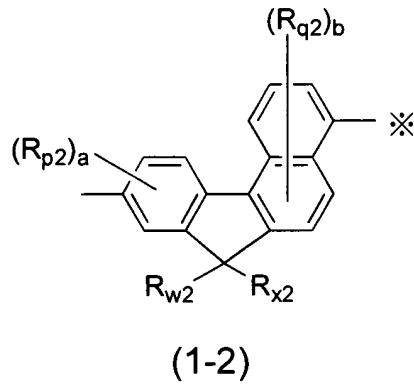
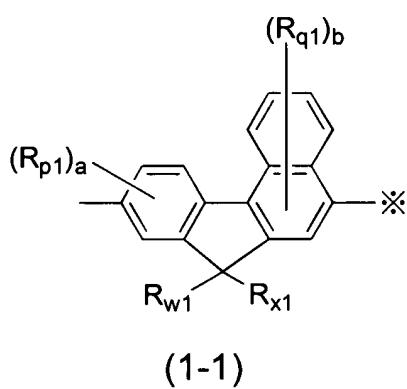
(19-2)

(wherein, benzene rings contained in structures of (19-1) and (19-2) may have each independently 1 to 4 ~~substituents~~. ~~These substituents, the~~ substituents may be mutually the same or ~~different~~. ~~Also, different,~~ a plurality of substituents may be connected to form a ~~ring~~. ~~Further,~~ ~~ring, and~~ another aromatic hydrocarbon ring or heterocyclic ring may be condensed next to the benzene ring).

39. (currently amended): The polymer compound according to ~~any one of Claims 25 to 38~~Claim 25, wherein it is a copolymer containing the repeating unit of said formula (13) in a ratio of 15 to 50 mol% based on all repeating units, and when the proportion that the repeating

unit of the formula (13) is adjacent to the repeating unit of the formula (13) is represented by Q_{22} , Q_{22} is 15 to 50% or more.

40. (currently amended): The polymer compound according to ~~any one of Claims 25 to 38~~^{Claim 25}, wherein it comprises said formula (13) and the following formula (1-1) or (1-2), and when the proportion that the formula (13) is bonded further to the formula (13) is represented by Q_{22} and the proportion that the formula (13) is bonded to a mark * of the formula (1-1) or the formula (1-2) is represented by Q_{21N} , Q_{22} is in a range of 15 to 50% and Q_{21N} is in a range of 20 to 40%:

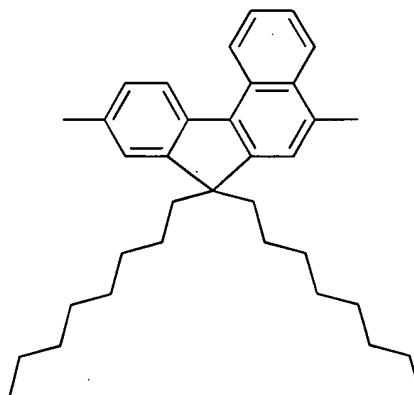


(wherein, R_{p1} , R_{q1} , R_{p2} , R_{q2} , a , b , R_{w1} , R_{x1} , R_{w2} and R_{x2} represent the same meanings as described above).

41. (original): The polymer compound according to Claim 13, wherein the compound is composed only of a repeating unit of said formula (1-1).

42. (currently amended): The polymer compound according to Claim 41, wherein the repeating unit of said formula (1-1) is a repeating unit of the following formula (16):

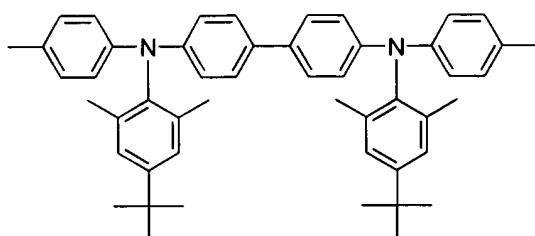
Jun OGUMA et al.
Atty. Dkt.: Q95134
Preliminary Amendment



(16)._z

43. (currently amended): The polymer compound according to Claim 41 or 42, wherein the solution curve of GPC is single-peaked and the degree of dispersion (weight-average molecular weight/number-average molecular weight) is 1.5 or more and 12 or less.

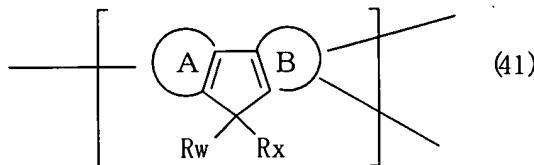
44. (currently amended): The polymer compound according to ~~any one of Claims 38 to 40~~Claim 38, wherein the compound is composed only of a repeating unit of said formula (16) and a repeating unit of the following formula (17)._z:



(17)._z

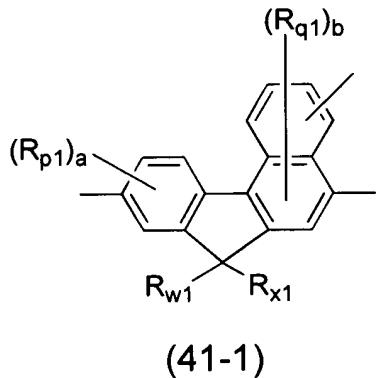
45. (currently amended): The polymer compound according to ~~any one of Claims 25 to 40, 44~~Claim 25, wherein the solution curve of GPC is double-peaked.

46. (currently amended): The polymer compound according to ~~any one of Claims 1 to 45~~Claim 25, wherein when the ratio of the repeating unit of said formula (1) 100 mol%, a branched structure of the following formula (41) is contained in a ratio of 0.1 mol% or more:



{wherein, ring A, ring B, R_w and R_x represent the same meanings as described above, and three connecting bonds are present on ring A and/or ring B}.

47. (currently amended): The polymer compound according to Claim 46, wherein the compound contains a repeating unit of the following formula (41-1) in a ratio of 0.1 mol% or more based on the repeating unit of said formula (1):



(41-1)

{wherein, R_{p1} , R_{q1} , R_{w1} , R_{x1} , a and b represent the same meanings as described above}.

48. (currently amended): The polymer compound according to ~~any one of Claims 1 to 47~~Claim 1, wherein one or more molecular chain ends of the polymer compound have an end group selected from the group consisting of a mono-valent heterocyclic group, mono-valent

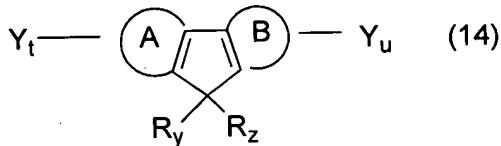
Jun OGUMA et al.
Atty. Dkt.: Q95134
Preliminary Amendment

aromatic amine group, mono-valent group derived from a heterocyclic coordinated metal complex and aryl group having a formula weight of 90 or more.

49. (original): The polymer compound according to Claim 48, wherein the end group is a condensed ring compound group.

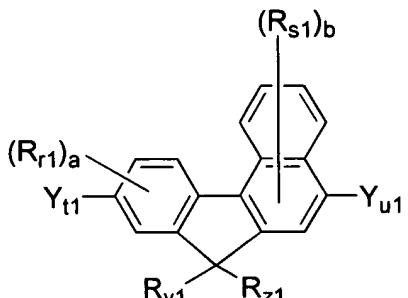
50. (original): The polymer compound according to Claim 48, wherein the end group is an aryl group having a substituent.

51. (currently amended): A method of producing the polymer compound according to ~~any one of Claims 1 to 50~~ Claim 1, comprising using a compound of the formula (14):

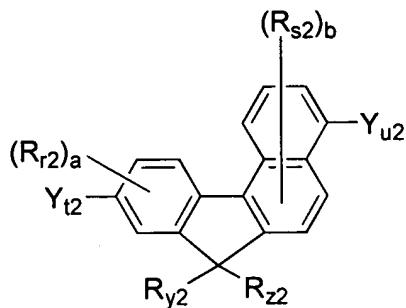


(wherein, R_y and R_z represent each independently a hydrogen atom, alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group, R_y and R_z may mutually bond to form a ring, Y_t and Y_u represent each independently a substituent correlated with polymerization, and are bonded to ring A and/or ring B.) as one raw material and polymerizing this.

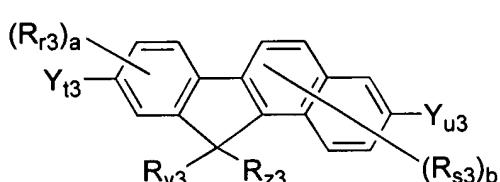
52. (currently amended): The production method according to Claim 51, wherein the formula (14) is a formula (14-1), (14-2), (14-3) or (14-4):



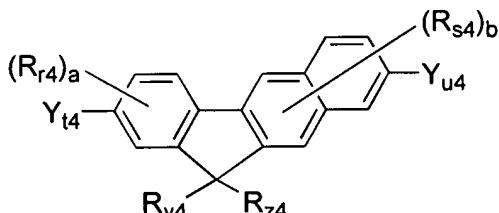
(14-1)



(14-2)



(14-3)



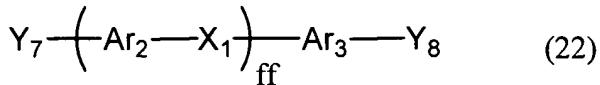
(14-4)

(wherein, R_{r1} , R_{s1} , R_{r2} , R_{s2} , R_{r3} , R_{s3} , R_{r4} and R_{s4} represent each independently an alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group. a represents an integer of 0 to 3, and b represents an integer of 0 to 5, and when a plurality of $R_{r1}s$, $R_{s1}s$, $R_{r2}s$, $R_{s2}s$, $R_{r3}s$, $R_{s3}s$, $R_{r4}s$ and $R_{s4}s$ are present, these may be the same or different— R_{y1} , R_{z1} , R_{y2} , R_{z2} , R_{y3} , R_{z3} , R_{y4} and R_{z4} represent each independently a hydrogen atom, alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group.

Jun OGUMA et al.
Atty. Dkt.: Q95134
Preliminary Amendment

arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group, and R_{y1} and R_{z1}, R_{y2} and R_{z2}, R_{y3} and R_{z3}, R_{y4} and R_{z4} may mutually bond to form a ring—, Y_{t1}, Y_{u1}, Y_{t2}, Y_{u2}, Y_{t3}, Y_{u3}, Y_{t4} and Y_{u4} represent each independently a substituent correlated with polymerization).

53. (currently amended): The production method according to Claim 51 or 52, wherein a compound of any of the following formulae (21) to (24) is used as a raw material and polymerized, in addition to the compound of said formula (14):



(wherein, Ar₁, Ar₂, Ar₃, Ar₄, ff, X₁, X₂ and X₃ represent the same meanings as described above—, Y₅, Y₆, Y₇, Y₈, Y₉, Y₁₀, Y₁₁ and Y₁₂ represent each independently a substituent correlated with polymerization).

54. (currently amended): The production method according to any one of Claims 51 to 53 or Claim 51, wherein compounds of the following formulae (25) and (27) are used as a raw material and polymerized, in addition to the compounds of said formula (14), said formula (15-1) and said formulae (21) to (24):

Jun OGUMA et al.
Atty. Dkt.: Q95134
Preliminary Amendment

E₁ — Y₁₃ (25)

E₂ — Y₁₄ (27)

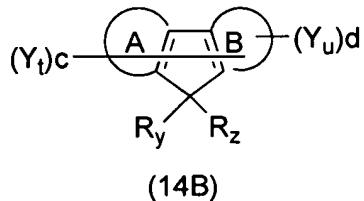
{wherein, E1 and E2 represent a mono-valent heterocyclic group, aryl group having a substituent or mono-valent aromatic amine group, and Y₁₃ and Y₁₄ represent each independently a substituent correlated with polymerization}.

55. (currently amended): The production method according to ~~any one of Claims 51 to 54~~Claim 51, wherein the substituent correlated with polymerization is selected each independently from a halogen atom, alkylsulfonate group, arylsulfonate group and arylalkylsulfonate group, and polymerized in the presence of a nickel 0-valent complex.

56. (currently amended): The production method according to ~~any one of Claims 51 to 54~~Claim 51, wherein the substituent correlated with polymerization is selected each independently from a halogen atom, alkylsulfonate group, arylsulfonate group, arylalkylsulfonate group, -B(OH)₂ or borate group, the ratio of the sum of mol numbers of a halogen atom, alkylsulfonate group, arylsulfonate group and arylalkylsulfonate group carried on all raw material compounds to the sum of mol numbers of -B(OH)₂ and borate group is substantially 1, and polymerization is carried out using a nickel or palladium catalyst.

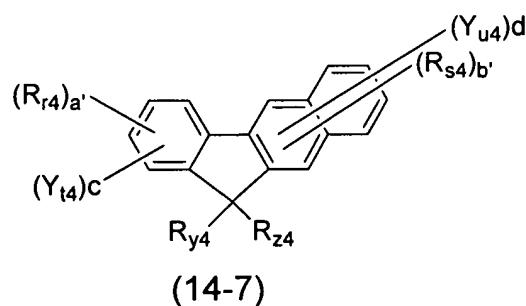
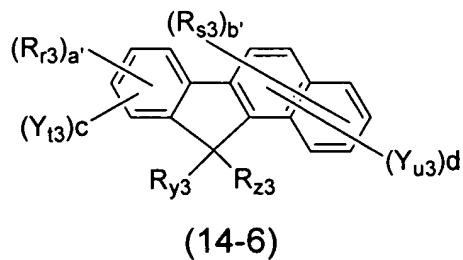
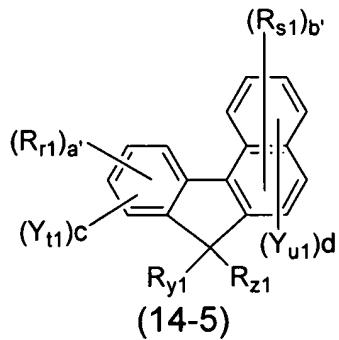
57. (currently amended): A method of producing the polymer compound according to ~~any one of Claims 1 to 50~~Claim 1, comprising using a compound of the following formula (14B):

Jun OGUMA et al.
Atty. Dkt.: Q95134
Preliminary Amendment



(wherein, R_y , R_z , Y_t and Y_u represent the same meanings as described above.— c represents 0 or a positive integer, d represents 0 or a positive integer, and $3 \leq c+d \leq 6$)—as one raw material and polymerizing this.

58. (currently amended): The production method according to Claim 57, wherein the compound of said formula (14B) is a compound of the following formula (14-5), (14-6) or (14-7):



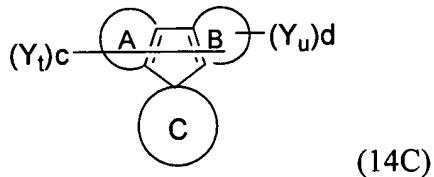
wherein, R_{r1} , R_{s1} , R_{r2} , R_{s2} , R_{r3} , R_{s3} , R_{r4} , R_{s4} , R_{y1} , R_{z1} , R_{y2} , R_{z2} , R_{y3} , R_{z3} , R_{y4} , R_{z4} , Y_{t1} , Y_{u1} , Y_{t3} , Y_{u3} , Y_{t4} and Y_{u4} represent the same meanings as described above, a' represents an integer of 0 to

Jun OGUMA et al.
Atty. Dkt.: Q95134
Preliminary Amendment

4, b' represents an integer of 0 to 5, c represents an integer of 0 to 3, d represents an integer of 0 to 5, $a'+c \leq 4$, $b'+d \leq 6$, and $3 \leq c+d \leq 6$. When, when a plurality of $R_{r1}s$, R_{s1} , $R_{r2}s$, $R_{s2}s$, $R_{r3}s$, $R_{s3}s$, $R_{r4}s$, $R_{s4}s$, $R_{y1}s$, $R_{z1}s$, $Y_{t1}s$, $Y_{u1}s$, $Y_{t3}s$, $Y_{u3}s$, $Y_{t4}s$ and $Y_{u4}s$ are present, these may be the same or different).

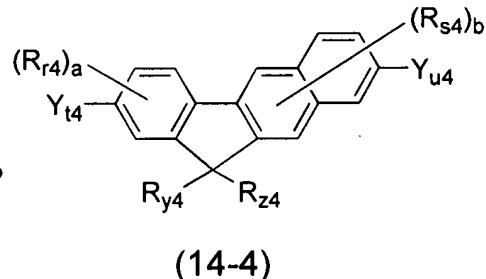
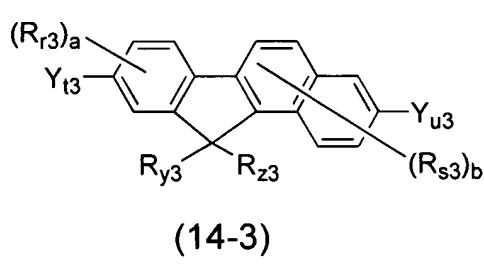
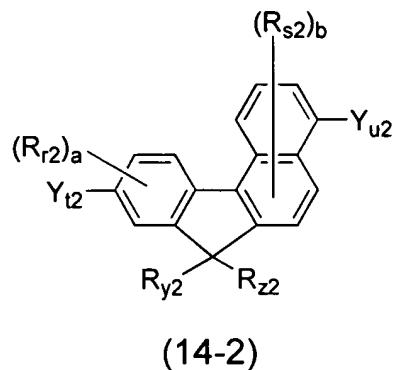
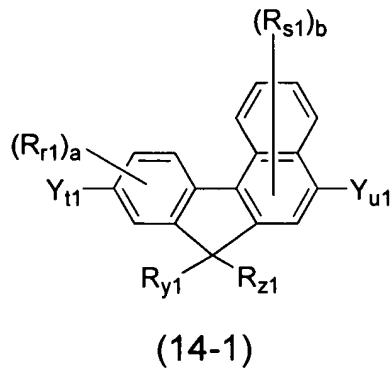
59. (original): A compound of said formula (14B).

60. (currently amended): A compound of the following formula (14C):



(wherein, ring A, ring B and ring C represent the same meanings as described above.— Y_t and Y_u represent the same meanings as described above.— c represents 0 or a positive integer, d represents 0 or a positive integer, and $2 \leq c+d \leq 6$).

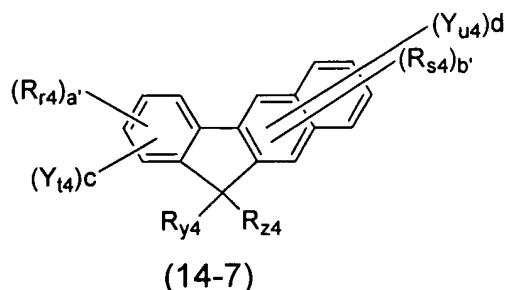
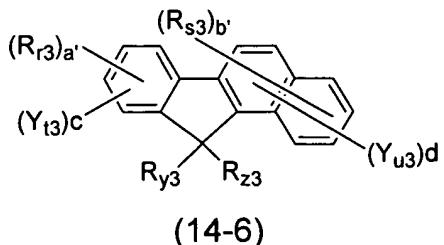
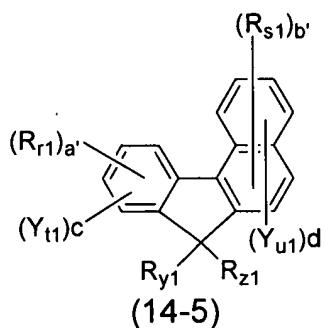
61. (currently amended): A compound of the following formula (14-1), (14-2), (14-3) or (14-4):



(wherein, R_{r1} , R_{s1} , R_{r2} , R_{s2} , R_{r3} , R_{s3} , R_{r4} and R_{s4} represent each independently an alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group.— a represents an integer of 0 to 3, and b represents an integer of 0 to 5, and when a plurality of R_{r1} s, R_{s1} s, R_{r2} s, R_{s2} s, R_{r3} s, R_{s3} s, R_{r4} s and R_{s4} s are present, these may be the same or different.— R_{y1} , R_{z1} , R_{y2} , R_{z2} , R_{y3} , R_{z3} , R_{y4} and R_{z4} represent each independently a hydrogen atom, alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group,

substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group, and R_{y1} and R_{z1} , R_{y2} and R_{z2} , R_{y3} and R_{z3} , R_{y4} and R_{z4} may mutually bond to form a ring.— Y_{t1} , Y_{u1} , Y_{t2} , Y_{u2} , Y_{t3} , Y_{u3} , Y_{t4} and Y_{u4} represent each independently a substituent correlated with polymerization).

62. (currently amended): A compound of the following formula (14-5), (14-6) or (14-7):



(wherein, R_{r1} , R_{s1} , R_{r2} , R_{s2} , R_{r3} , R_{s3} , R_{r4} , R_{s4} , R_{y1} , R_{z1} , R_{y2} , R_{z2} , R_{y3} , R_{z3} , R_{y4} , R_{z4} , Y_{t1} , Y_{u1} , Y_{t3} , Y_{u3} and Y_{t4} and Y_{u4} represent the same meanings as described above, a' represents an integer of 0 to 4, b' represents an integer of 0 to 5, c represents an integer of 0 to 3, d represents an integer of 0 to 5, $a'+c\leq 4$, $b'+d\leq 6$, and $3\leq c+d\leq 6$. When, when a plurality of R_{r1} s, R_{s1} , R_{r2} s, R_{s2} s, R_{r3} s, R_{s3} s,

Jun OGUMA et al.
Atty. Dkt.: Q95134
Preliminary Amendment

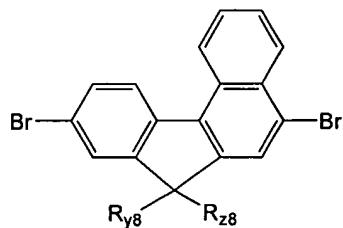
$R_{r4}S$, $R_{s4}S$, $R_{y1}S$, $R_{z1}S$, $Y_{t1}S$, $Y_{u1}S$, $Y_{t3}S$, $Y_{u3}S$, $Y_{t4}S$ and $Y_{u4}S$ are present, these may be the same or different).

63. (currently amended): The compound according to ~~any one of Claims 59 to 62~~ Claim 59, wherein the substituent correlated with polymerization is selected each independently from a halogen atom, alkylsulfonate group, arylsulfonate group and arylalkylsulfonate group.

64. (original): A compound of said formula (14-1), (14-3) or (14-4) wherein Y_{t1} , Y_{u1} , Y_{t3} , Y_{u3} , Y_{t4} and Y_{u4} represent a bromine atom.

65. (original): The compound according to Claim 64, wherein a and b in said formula (14-1), (14-3) or (14-4) is 0.

66. (currently amended): A compound of the following formula (14-8):



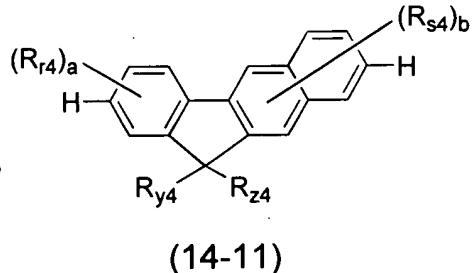
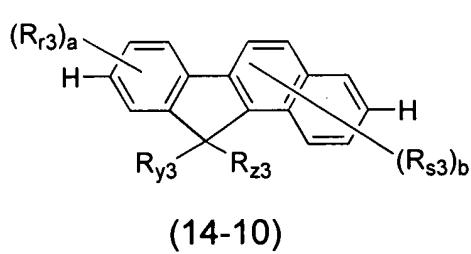
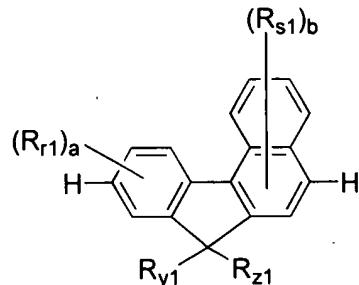
(14-8)

(wherein, R_{y8} and R_{z8} represent each independently a hydrogen atom, alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue,

Jun OGUMA et al.
Atty. Dkt.: Q95134
Preliminary Amendment

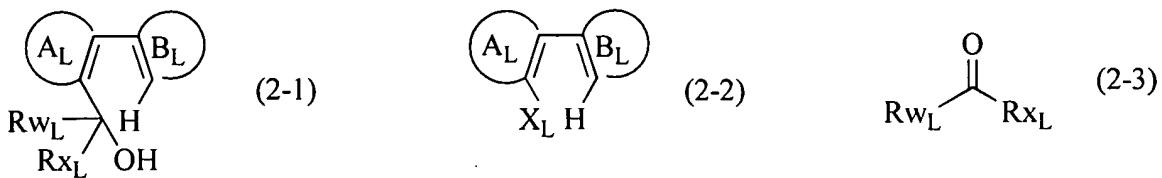
amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group, and R_{y8} and R_{z8} may mutually bond to form a ring).

67. (currently amended): A method of producing the compound according to ~~any one of Claims 64 to 66~~ Claim 64, comprising brominating a compound of the following formula (14-9), (14-10) or (14-11) with a brominating agent:



(wherein, R_{r1}, R_{s1}, R_{r3}, R_{s3}, R_{r4}, R_{s4}, R_{y1}, R_{z1}, R_{y3}, R_{z3}, R_{y4}, R_{z4}, and a and b have the same meanings as described above.—H represents a hydrogen atom).

68. (currently amended): A method of producing a compound of the following formula (2-1), comprising reacting a compound of the following formula (2-2) with a metallizing agent to convert X_L into M_L, then, reacting this with a compound of the following formula (2-3):

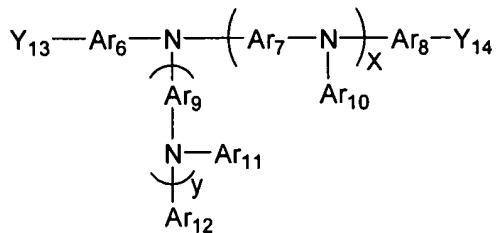


(wherein, ring A_L and ring B_L represent each independently an aromatic hydrocarbon ring optionally having a substituent, at least one of ring A_L and ring B_L is an aromatic hydrocarbon ring composed of a plurality of condensed benzene rings.—R_{wL} and R_{xL} represent each independently a hydrogen atom, alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, monovalent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group, and R_{wL} and R_{xL} may mutually bond to form a ring.—X_L represents a bromine atom or iodine atom.—M_L represents a metal atom or its salt).

69. (currently amended): The compound according to ~~any one of Claims 57 to 62~~ Claim 57, wherein the substituents correlated with polymerization are selected each independently from -B(OH)₂ or borate groups.

70. (currently amended): A method of producing the polymer compound according to ~~any one of Claims 25 to 40, 44 to 50~~ Claim 25 comprising using compounds of said formula (14) and the following formula (15-1):

Jun OGUMA et al.
Atty. Dkt.: Q95134
Preliminary Amendment



(15-1)

(wherein, Ar₆, Ar₇, Ar₈ and Ar₉ represent each independently an arylene group or divalent heterocyclic group—, Ar₁₀, Ar₁₁ and Ar₁₂ represent each independently an aryl group or monovalent heterocyclic group—, Ar₆, Ar₇, Ar₈, Ar₉ and Ar₁₀ may have a substituent—, x and y represent each independently 0 or 1, x and y represent each independently 0 or a positive integer, and Y₁₃ and Y₁₄ represent each independently a substituent correlated with polymerization—, as a raw material and polymerizing them.

71. (currently amended): A composition comprising at least one material selected from hole transporting materials, electron transporting materials and light emitting materials and the polymer compound according to ~~any one of Claims 1 to 50~~Claim 1.

72. (original): A polymer composition comprising two or more polymer compounds containing a repeating unit of said formula (1), wherein the sum of the polymer compounds is 50 wt% or more based on the total amount.

73. (original): The polymer composition according to Claim 72, comprising at least one polymer compound composed only of a repeating unit of said formula (1) and at least one copolymer containing a repeating unit of said formula (1) in a ratio of 50 mol% or more.

Jun OGUMA et al.
Atty. Dkt.: Q95134
Preliminary Amendment

74. (original): The polymer composition according to Claim 72, comprising two or more copolymers containing a repeating unit of said formula (1) in a ratio of 50 mol% or more, wherein the copolymers contain also mutually different repeating units.

75. (original): The polymer composition according to Claim 72, comprising two or more copolymers containing a repeating unit of said formula (1) in a ratio of 50 mol% or more, wherein the copolymers are composed of the same combination of repeating units though the copolymerization ratios thereof are mutually different.

76. (original): The polymer composition according to Claim 72, comprising two or more polymer compounds composed only of a repeating unit of said formula (1).

77. (currently amended): The polymer composition according to ~~any one of Claims 72 to 75~~Claim 72, wherein at least one polymer compound contained in the polymer composition is a copolymer containing a repeating unit of said formula (1) in a ratio of 50 mol% or more, this copolymer contains also a repeating unit of said formula (13), and the molar ratio of the repeating unit of said formula (1) to the repeating unit of said formula (13) is 99:1 to 50:50.

78. (currently amended): The polymer composition according to Claim 72, ~~73 or 77~~, comprising at least one polymer compound composed only of a repeating unit of said formula (1) and at least one copolymer containing a repeating unit of said formula (1) in a ratio of 50 mol% or more, wherein this copolymer contains a repeating unit of said formula (1) and a repeating unit of said formula (13), and the molar ratio of the repeating unit of said formula (1) to the repeating unit of said formula (13) is 90:10 to 50:50.

Jun OGUMA et al.
Atty. Dkt.: Q95134
Preliminary Amendment

79. (currently amended): The polymer composition according to Claim 72, ~~74 or 75~~, comprising a copolymer containing a repeating unit of said formula (1) and a repeating unit of said formula (13) wherein the molar ratio of the repeating unit of said formula (1) to the repeating unit of said formula (13) is 99:1 to 90:10, and a copolymer containing a repeating unit of said formula (1) and a repeating unit of said formula (13) wherein the molar ratio of the repeating unit of said formula (1) to the repeating unit of said formula (13) is 80:20 to 50:50.

80. (currently amended): A solution comprising the polymer compound according to ~~any one of Claims 1 to 50~~Claim 1.

81. (currently amended): A solution comprising the polymer composition according to ~~any one of Claims 71 to 79~~Claim 71.

82. (currently amended): The solution according to Claim 80 or 81, comprising two or more organic solvents.

83. (currently amended): The solution according to ~~any one of Claims 80 to 82~~Claim 80, comprising an organic solvent having a structure containing at least one benzene ring and having a melting point of 0°C or less and a boiling point of 100°C or more.

84. (currently amended): The solution according to ~~any one of Claims 80 to 83~~Claim 80, comprising at least one organic solvent selected from anisole, xylene, cyclohexylbenzene and bicyclohexyl.

85. (currently amended): The solution according to ~~any one of Claims 80 to 84~~Claim 80, wherein the ratio of a solvent having highest boiling point is 40 to 90 wt%.

Jun OGUMA et al.
Atty. Dkt.: Q95134
Preliminary Amendment

86. (currently amended): The solution according to ~~any one of Claims 80 to 85~~Claim 80, wherein the concentration of polymer compounds in the solution is 0.5 to 2.0 wt%.

87. (currently amended): The solution according to ~~any one of Claims 80 to 86~~Claim 80, comprising a polymer compound composed only of a repeating unit of said formula (16) and a polymer compound composed of a repeating unit of said formula (16) and a repeating unit of said formula (17).

88. (currently amended): The solution according to ~~any one of Claims 80 to 87~~Claim 80, wherein the viscosity at 25°C is 1 to 20 mPa•s.

89. (currently amended): The solution according to ~~any one of Claims 80 to 88~~Claim 80, further comprising an additive for controlling viscosity and/or surface tension.

90. (currently amended): The solution according to ~~any one of Claims 80 to 89~~Claim 80, further comprising an antioxidant.

91. (currently amended): The solution according to ~~any one of Claims 80 to 90~~Claim 80, wherein a difference between the solubility parameter of the solvent and the solubility parameter of the polymer compound is 10 or less.

92. (currently amended): A light emitting film comprising the polymer compound according to ~~any one of Claims 1 to 50 or the polymer composition according to any one of Claims 71 to 79~~Claim 1.

93. (original): The light emitting film according to Claim 92, wherein quantum yield of emission is 50% or more.

Jun OGUMA et al.
Atty. Dkt.: Q95134
Preliminary Amendment

94. (currently amended): An electrically conductive film comprising the polymer compound according to ~~any one of Claims 1 to 50 or the polymer composition according to any one of Claims 71 to 79~~Claim 1.

95. (original): The electrically conductive film according to Claim 94, wherein the surface resistance is $1 \text{ K}\Omega/\square$ or less.

96. (currently amended): An organic semiconductor film comprising the polymer compound according to ~~any one of Claims 1 to 50 or the polymer composition according to any one of Claims 71 to 79~~Claim 1.

97. (original): The organic semiconductor film according to Claim 96, wherein a larger value of electron mobility or hole mobility is $10^{-5} \text{ cm}^2/\text{V}\cdot\text{s}$ or more.

98. (currently amended): An organic transistor comprising the organic semiconductor film according to ~~Claim 96 or 97~~.

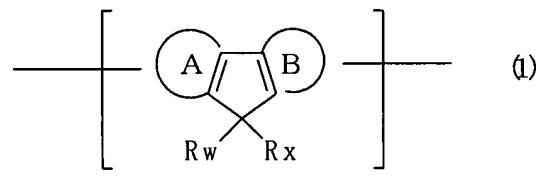
99. (currently amended): A method of producing the film according to ~~any one of Claims 92 to 97~~Claim 92, comprising using an inkjet method.

100. (currently amended): A polymer light emitting device comprising an organic layer between an anode and a cathode wherein the organic layer comprises the polymer compound according to ~~any one of Claims 1 to 50 or the polymer composition according to any one of Claims 71 to 79~~Claim 1.

101. (original): The polymer light emitting device according to Claim 100, wherein the organic layer is a light emitting layer.

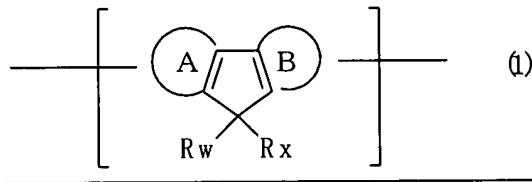
102. (original): The polymer light emitting device according to Claim 101, wherein the light emitting layer further contains a hole transporting material, electron transporting material or light emitting material.

103. (currently amended): The polymer light emitting device according to Claim 100, wherein the device comprises a light emitting layer and ~~an-a~~ charge transporting layer between an anode and a cathode wherein the charge transporting layer comprises ~~the-a~~ polymer compound according to any one of Claims 1 to 50 or the polymer composition according to any one of Claims 71 to 79 comprising a repeating unit of the following formula (1):



wherein, ring A and ring B represent each independently an aromatic hydrocarbon ring optionally having a substituent, at least one of ring A and ring B is an aromatic hydrocarbon ring composed of a plurality of condensed benzene rings, two connecting bonds are present on ring A and/or ring B, R_w and R_x represent each independently a hydrogen atom, alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group, and R_w and R_x may mutually bond to form a ring.

104. (currently amended): The polymer light emitting device according to Claim 100, wherein the device comprises a light emitting layer and an-a charge transporting layer between an anode and a cathode and comprises an-a charge injection layer between the charge transporting layer and the electrode wherein the charge injection layer comprises ~~the-a~~ polymer compound ~~according to any one of Claims 1 to 50 or the polymer composition according to any one of Claims 71 to 79~~ comprising a repeating unit of the following formula (1):



wherein, ring A and ring B represent each independently an aromatic hydrocarbon ring optionally having a substituent, at least one of ring A and ring B is an aromatic hydrocarbon ring composed of a plurality of condensed benzene rings, two connecting bonds are present on ring A and/or ring B, R_w and R_x represent each independently a hydrogen atom, alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group, and R_w and R_x may mutually bond to form a ring.

105. (currently amended): The polymer light emitting device according to ~~any one of Claims 100 to 104~~Claim 100, wherein the maximum external quantum yield when a voltage of 3.5 V or more is applied between an anode and a cathode is 1% or more.

Jun OGUMA et al.
Atty. Dkt.: Q95134
Preliminary Amendment

106. (currently amended): A sheet light source, comprising the polymer light emitting device according to ~~any one of Claims 100 to 105~~Claim 100.

107. (currently amended): A segment display, comprising the polymer light emitting device according to ~~any one of Claims 100 to 105~~Claim 100.

108. (currently amended): A dot matrix display, comprising the polymer light emitting device according to ~~any one of Claims 100 to 105~~Claim 100.

109. (currently amended): A liquid crystal display, comprising as a back light the polymer light emitting device according to ~~any one of Claims 100 to 105~~Claim 100.